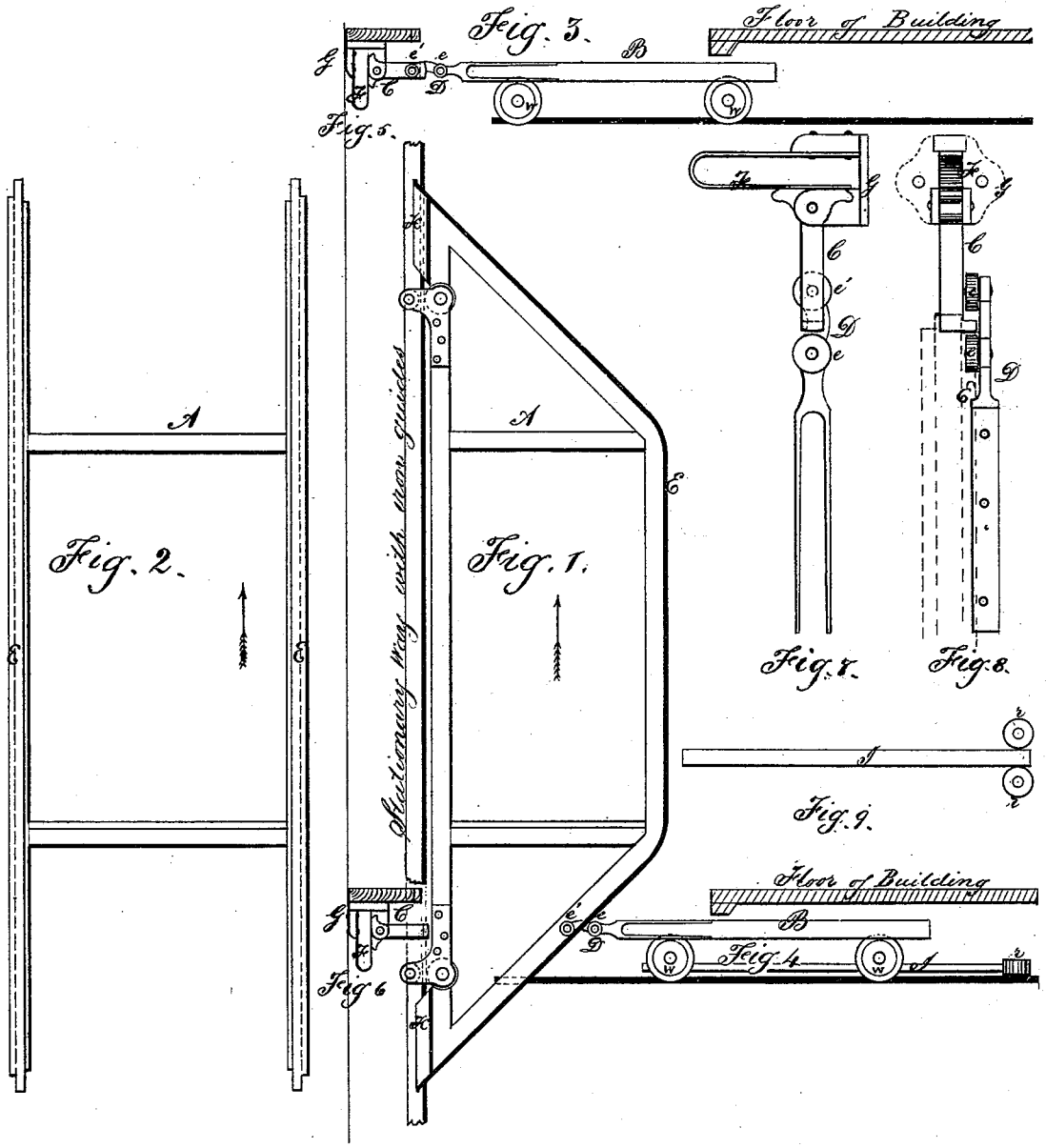
J. FENSOM.

Self Closing Hatchway.

No. 165,554. Patented July 13, 1875.



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IMPROVEMENT IN SELF-CLOSING HATCHWAYS.

Specification forming part of Letters Patent No. **165,554**, dated July 13, 1875; application filed November 4, 1873.

To all whom it may concern:

Be it known that I, JOHN FENSOM, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, engineer and machinist, have invented certain new and useful Improvements in Hatchways or Hoists; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings forming part of this specification.

The same letters of reference indicate the same parts in all the views.

Figure 1 is a side view of a movable cage, marked A, which may be constructed of wood or other suitable material. Fig. 2 is a front view of the same. Fig. 3 is a hatch-door, marked B, mounted on wheels W W, and with forked connecting-bar D or its equivalent, to which bar are attached two small rollers, *e' e*. Fig. 4 is another view of this hatch-door B, showing the manner in which it is operated by the cam E attached to the cage A. There are two flanged cams E one pair on each side of the cage A, and two forked connecting-bars D, with rollers *e' e*, one on each side of the hatch-door B, which will be understood from Fig. 2. Fig. 5 is a bracket, marked G, forming a lock for securing the hatch-door B in its normal position, and showing the said hatch-door in that position, and locked. This bracket G is provided with a hinged bolt, C, and a spring, F. Fig. 6 shows the aforesaid bracket G, with hinged bolt C and spring F detached from the hatch-door B. Fig. 7 is an enlarged view (a side view) of bracket G, with hinged bolt C and spring F, and the forked connecting-bar D, with rollers *e' e* for the better explanation of the same. Fig. 8 is an enlarged view (a ground view) or plan of the same, and showing in dotted lines the position of the cage A, when the point of which comes first in contact with the hinged bolt C. It also shows the projection of the cam E over the edge of the cage A, which acts upon and operates the hatch-door B by means of the rollers *e' e*. Fig. 9 is an arrangement for securing a parallel and steady motion to the hatch-door B by means of a parallel iron bar, I, moving between two guide-rollers, *r r*. This bar I is attached to the hatch-door B, as shown in Fig. 4.

This invention relates to that description of hoist of which the hatch-doors are opened, closed, and locked automatically by means of cams on the car engaging with the sliding doors to operate the same on the passage of the car; and the improvement consists in a peculiar construction of the cam and rollers, and in the combination therewith of a peculiar locking device, as hereinafter described.

Returning to Fig. 1, it will be seen that the movable cage A (which is shown here in its course of ascent) is strengthened by means of a flat bar of iron, E, fastened on the front of each side, and projecting therefrom sidewise about one inch, forming a cam, as aforesaid, which is shown more particularly in Fig. 2, where both sides are shown, which cams, as aforesaid, may be either constructed as part of the cage or put on separately. There are also two projections on the back of the cage, one at the top, the other at the bottom, marked H H. The cage A in its further ascent raises up the point of the hinged bolt C, and by means of the upper projection H keeps it up until the roller *e'* is clear of the hinged bolt C, and the outer rollers *e e* overtaken and acted upon by the cams formed by the projecting edges of the flat bars E E, which now press on the outer rollers *e e* until the hatch-door is fully open. The body or parallel portion of the cage A now passes freely through the floor, and the lower angular portion of the cage A, coming in contact with the inner rollers *e' e*, presses upon these, and brings the hatch-door B back to its normal position. The lower projection H being now clear of the hinged bolt C the latter is forced back to its central position by the spring F, the hatch-door B becoming securely locked thereby. The said hatch-door B being now securely locked remains locked until the return of the cage A, which, in its descent, performs the same operation in passing through each floor, as in its descent. Both ends of the cage A being similar in form and in construction, and the action of the hinged bolt C with spring F being common to both a uniform traverse motion is communicated to the hatch-door B by the cams E E. The angular ends of the cage

provide, first, for its own passage through the floors, and second, for bringing back the hatch-door B to its normal position, and leaving it there securely locked by means of the mechanism on bracket G, already described.

The motion of the hatch-door is secured as a steady and parallel motion by means of the parallel iron bar J passing between two guide-rollers, *r r*, the bar I being attached in a line parallel with the center line of the hatch-door.

Having thus described my invention, I claim—

1. The bracket G, with hinged bolt C and spring F, in combination with the projections H H on the back of the cage A, as herein shown and described, and for the purposes set forth.

2. The bracket G, with hinged bolt C and spring F, in combination with the inner roller *e'* on the connection-bar D, attached to the hatch-door B, as specified and described, and for the purposes set forth.

3. In combination with the single-flanged cams E E on case A, the pairs of rollers *e e' e e'* on the hatch-door, one of each pair engaging with and running on one side, and the other on the opposite side of its flange, as shown and described, and for the purposes set forth.

4. The spring F applied to a stationary part of the apparatus, and operating to hold the locking device in position to be automatically locked or unlocked, substantially as shown and described.

5. The combination, with the described cams and rollers, operating, as set forth, to close the hatch-door, of the described locking mechanism, operating to lock the hatch when so closed.

JOHN FENSOM.

Witnesses:
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